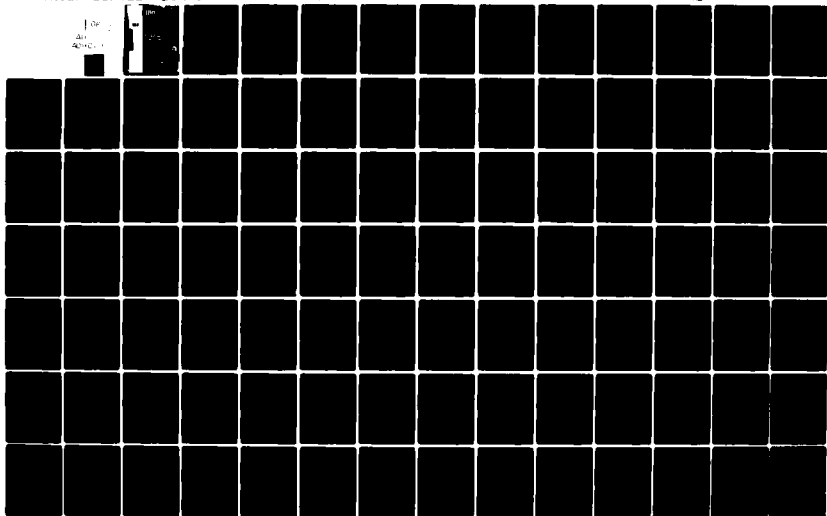


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No. 44

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20. ABSTRACT This is the Soviet Laser Bibliography for November-December 1979, and is No. 44 in a continuing series on Soviet laser developments. The coverage includes basic research on solid state, liquid, gas, and chemical lasers; components; nonlinear optics; spectroscopy of laser materials; ultrashort pulse generation; theoretical aspects of advanced lasers; and general laser theory. Laser applications are listed under biological effects; communications; beam propagation; computer technology; holography; laser-induced chemical reactions; measurement of laser parameters; laser measurement applications; laser-excited optical effects; laser spectroscopy; beam-target interaction; and plasma generation and diagnostics.		

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Introduction

This bibliography has been compiled under an interagency agreement as a continuing effort to document current Soviet-bloc developments in the quantum electronics field. The period covered is November-December 1979, and includes all significant laser-related articles received by us in that interval. The bulk of the entries come from the approximately 30 periodicals which are known to publish the most significant findings in Soviet laser technology. Citations from the Russian Reference Journals are also included. Laser items from the popular or semipopular press are generally omitted.

For convenience we have abbreviated frequently cited source names; a source abbreviations list and an author index are included. All sources cited with no parenthetical notation are available at the Library of Congress. A parenthetical entry (RZh, KL) indicates the secondary source in which the citation was found as a bibliographic entry or abstract, but for which the original source is not currently available at the Library. The authors' affiliations are indicated by the numbers in parentheses following the authors' names in the text and are listed in the Author Affiliations List. New affiliations are assigned a new number and are added to a cumulative list which includes all affiliations from 1969 to the present. Only those affiliations which appear in this issue are listed in this issue's Author Affiliations List.

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TABLE OF CONTENTS

I. BASIC RESEARCH

A. Solid State Lasers

1. Crystal: Ruby	1
2. Crystal: Rare-Earth Activated	
a. Nd ³⁺	1
b. Er ³⁺	2
c. Ho ³⁺	2
d. Sm ³⁺	2
3. Crystal: Miscellaneous	3
4. Semiconductor: Simple Junction	
a. GaAs	4
b. CdS	4
5. Semiconductor: Mixed Junction	4
6. Semiconductor: Heterojunction	5
7. Semiconductor: Theory	6
8. Glass: Nd	7
9. Glass: Miscellaneous	7

B. Liquid Lasers

1. Organic Dyes	
a. Rhodamine	8
b. Miscellaneous Dyes	8
2. Inorganic Liquids	---

C. Gas Lasers

1. Simple Mixtures	
a. He-Ne	10
b. He-Eu	10
c. He-H	11

2. Molecular Beam and Ion	
a. CO ₂	11
b. Noble Gas	13
c. H ₂	13
d. N ₂	14
e. CF ₄	14
f. CH ₄	14
g. Submillimeter	15
h. Metal Vapor	15
i. Gasdynamic	18
3. Excimer	---
4. Theory	21
D. Chemical Lasers	
1. F ₂ +H ₂ (D ₂)	22
2. Photodissociative	23
3. Transfer	---
4. Miscellaneous	23
E. Components	
1. Resonators	
a. Design and Performance	24
b. Mode Kinetics	24
2. Pump Sources	25
3. Deflectors	26
4. Diffraction Gratings	27
5. Mirrors	27
6. Detectors	27
7. Modulators	29
F. Nonlinear Optics	
1. Frequency Conversion	31
2. Parametric Processes	33
3. Stimulated Scattering	
a. Raman	34
b. Brillouin	35
c. Miscellaneous Scattering	36

4. Self-focusing	36
5. Acoustic Interaction	37
6. General Theory	38
G. Spectroscopy of Laser Materials	41
H. Ultrashort Pulse Generation	42
J. Crystal Growing	---
K. Theoretical Aspects of Advanced Lasers	42
L. General Laser Theory	43

II. LASER APPLICATIONS

A. Biological Applications	45
B. Communications Systems	46
C. Beam Propagation	
1. In the Atmosphere	48
2. In Liquids	67
3. Theory	68
D. Computer Technology	69
E. Holography	71
F. Laser-Induced Chemical Reactions	79
G. Measurement of Laser Parameters	82
H. Laser Measurement Applications	
1. Direct Measurement by Laser	86
2. Laser-Excited Optical Effects	100
3. Laser Spectroscopy	103
J. Beam-Target Interaction	
1. Metal Targets	113
2. Dielectric Targets	114
3. Semiconductor Targets	116
4. Miscellaneous Studies	117

K. Plasma Generation and Diagnostics	118
III. MONOGRAPHS, BOOKS, CONFERENCE PROCEEDINGS	125
IV. SOURCE ABBREVIATIONS	128
V. AUTHOR AFFILIATIONS	133
VI. AUTHOR INDEX	137

I. BASIC RESEARCH

A. SOLID STATE LASERS

1. Crystal: Ruby

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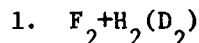
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J. BEAM-TARGET INTERACTION

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K. PLASMA GENERATION AND DIAGNOSTICS

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IV. SOURCE ABBREVIATIONS

(CIRC Codens)

BWAT	(BWATA)	Biuletyn Wojskowej akademii technicznej J. Dabrowskiego
DAN B	(DBLRA)	Akademiya nauk Belorusskoy SSR. Doklady
DAN SSSR	(DANKA)	Akademiya nauk SSSR. Doklady
DAN Ukr	(DUKAB)	Akademiya nauk Ukrayins'koyi RSR. Dopovidl. Seriya A. Fizyko-matematychni ta tekhnichni nauky
ETP	(EXPPA)	Experimentelle Technik der Physik
FAiO	(IFAOA)	Akademiya nauk SSSR. Izvestiya. Fizika atmosfery i okeana
FGiV	(FGVZA)	Fizika goreniya i vzryva
FiKhOM	(FKOMA)	Fizika i khimiya obrabotka materialov
FTP	(FTPPA)	Fizika i tekhnika poluprovodnikov
FTT	(FTVTA)	Fizika tverdogo tela
IAN Uz	(IUZFA)	Akademiya nauk Uzbekskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh i geologokhimicheskikh nauk
I-FZh	(INFZA)	Inzhenerno-fizicheskiy zhurnal
IT	(IZTEA)	Izmeritel'naya tekhnika
IVUZ Fiz	(IVUFA)	Izvestiya vysshikh uchebnykh zavedeniy. Fizika
IVUZ Priboro	(IVUBA)	Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye
IVUZ Radioelektr	(IVUZB)	Izvestiya vysshikh uchebnykh zavedeniy. Radioelektronika
IVUZ Radiofiz	(IVYRA)	Izvestiya vysshikh uchebnykh zavedeniy. Radiofizika
KE	(KVEKA)	Kvantovaya elektronika
KhVE	(KHVKA)	Khimiya vysokikh energiy
KLDV	(FLDVA)	Knizhnaya letopis'. Dopolnitel'nyy vypusk
Kristal	(KRISA)	Kristallografiya
KSpF	(KRSFA)	Kratkiye soobshcheniya po fizike

MZhIG	(IMZGA)	Akademiya nauk SSSR. Izvestiya. Mekhanika zhidkosti i gaza
NM	(IVNMA)	Akademiya nauk SSSR. Izvestiya. Neorganicheskiye materialy
OiS	(OPSPA)	Optika i spektroskopiya
OMP	(OPMPA)	Optiko-mekhanicheskaya promyshlennost'
Opt app	(OPAPB)	Optica applicata [Poland]
Otkr izobr	(OIPOV)	Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki
PSS	(PSSAB) (PSSBB)	Physica Status Solidi (A). Applied Research Physica Status Solidi (B). Basic Research
PTE	(PRTEA)	Pribory i tekhnika eksperimenta
RiE	(RAELA)	Radiotekhnika i elektronika
RRP	(RRPQA)	Revue roumaine de physique
RZhF	(RZFZA)	Referativnyy zhurnal. Fizika
RZhGeofiz	(GZGFA)	Referativnyy zhurnal. Geofizika
RZhMekh	(RZMKA)	Referativnyy zhurnal. Mekhanika
RZhRadiot	(RZRAB)	Referativnyy zhurnal. Radiotekhnika
Sb1	Sbornik	Kvantovaya elektronika, no. 17, Kiyev, 1979.
Sb2		Vsesoyuznyy simpozium po rasprostraneniyu lazernogo izlucheniya v atmosfere. 5th. Tezisy dokladov. Part 4. Tomsk, 1979.
Sb3		Pikosekundnyye metody v spektroskopii molekul, kristallov i biologicheskikh sistem. Mezhdunarodnyy simpozium Sverkhbystryye protsessy v spektroskopii, Tallin, 1978. Tallin, 1979.
Sb4		Yugoslav Symposium on the Physics of Condensed Matter. 6th. Krusevac, 18-22 September 1978. Proceedings. Fizika, v. 10, Supplement 1, no. 2, 1978.
Sb5		Effektivnyye gazorazryadnyye lazery na parakh metallov. Tomsk, 1978.
Sb6		Khimiya plazmy, no. 6, 1979.
Sb7		Polucheniye, obrabotka, peredacha i otobrazheniye informatsii. Moskva, 1978.

- Sb8 Wissenschaftliche Zeitschrift der Paedagogischen Hochschule
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- Sb9 Lazery v ortopedii i travmatologii. Kazanskiy GU, 1978.
- Sb10 Vsesoyuznyy simpozium po rasprostraneniyu lazernogo
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- Sb12 Priborostroyeniye, no. 27, Kiyev, 1979.
- Sb13 Morskiye gidrofizicheskiye issledovaniya, no. 1(84), 1979.
- Sb14 Voprosy teoreticheskoy i eksperimental'noy fiziki.
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- Sb17 Tonkiye magnitnyye plenki dlya registratsii opticheskoy
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- Sb19 Fizicheskiye osnovy golografii. Vsesoyuznaya shkola po
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- Sb21 Diagnostika potokov razrezhennogo gaza. Novosibirsk, 1979.
- Sb22 Fiziko-khimicheskii analiz sverkhprovodyashchikh splavov.
Moskva, 1979.
- Sb23 Sensibilizirovannaya fluorestsensiya smesey parov metallov.
Riga, 1979.
- Sb24 Opticheskiy metody issledovaniy v ballisticheskoy
eksperimente. Leningrad, Nauka, 1979.
- Sb25 Nauchnyye informatsii, no. 38, 1976.
- Sb26 Gornoye davleniye, metody upravleniya i kontrolya.
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- Sb29 Vsesoyuznaya konferentsiya po metodam aerofizicheskikh issledovaniy. 2nd. 1979. Sbornik dokladov. Novosibirsk, 1979.
- Sb30 Issledovaniya po geodezii, aerofotos"yemke i kartografii, no. 4(3), Moskva, 1978.
- Sb31 Fizika i mekhanika deformatsii i razrusheniya, no. 6, Moskva, 1979
- Sb32 Nauchno-tekhnicheskaya konferentsiya molodykh uchenyye. 2nd. Materialy. Kiyev, 1979. Deposit at UkrNIINTI, no. 1695, 26 September 1979.
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- Sb34 Elektronnyye i ionnyye protsessy v ionnykh kristallakh, no. 7, Riga, 1979.
- Sb35 Wissenschaftliche Zeitschrift der Friederich-Schiller-universitaet Jena. Mathematisch-naturwissenschaftliche Reihe, no. 2-3, 1978.
- Sb36 Lazernaya spektroskopiya atmosferykh gazov. Tomsk, 1978.
- Sb37 Elektronno-kolebatel'nyye spektry nekotorykh aromaticeskikh soyedineniy, no. 2, Smolensk, 1978.
- Sb38 Vliyaniye ionizirovannikh izlucheniy na svoystva dielektrikov i poluprovodnikov, no. 1, Moskva, 1979.
- Sb39 Tekhnika radiatsionnogo eksperimenta, no. 6, Moskva, 1978.
- TKiT (TKTEA) Tekhnika kino i televedeniya
- Tr1 Trudy Yerevanskiy universitet. Uchenyye zapiski. Yestestvennyye nauki, no. 1, 1979.
- Tr2 Moskovskiy fiziko-tekhnicheskii institut. Trudy. Radiotekhniki i elektroniki, no. 13, 1978.
- Tr3 Kuybyshevskiy gos pedagogicheskii institut. Nauchnyye trudy, no. 221, 1978.
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- Tr5 Tsentral'nyy NII morskogo flota. Trudy, no. 245, 1979.
- Tr6 Leningradskiy elektrotekhnicheskii institut. Izvestiya, no. 253, 1979.

TVT	(TVTYA)	Teplofizika vysokikh temperatur
UFN	(UFNAA)	Uspekhi fizicheskikh nauk
UFZh	(UFIZA)	Ukrainskiy fizicheskiy zhurnal
VMU	(VMUFA)	Moskovskiy universitet. Vestnik. Fizika, astronomiya
ZhETF	((ZEIFA)	Zhurnal eksperimental'noy i teoreticheskoy fiziki
ZhETF P	(ZFPRA)	Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fiziki
ZhNiPFiK	(ZNPFA)	Zhurnal nauchnoy i prikladnoy fotografii i kinematografii
ZhPMTF	(ZPMFA)	Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki
ZhPS	(ZPSBA)	Zhurnal prikladnoy spektroskopii
ZhTF	(ZTEFA)	Zhurnal tekhnicheskoy fiziki
ZhTF P	(PZTFD)	Pis'ma v Zhurnal tekhnicheskoy fiziki
ZhVMMF	(ZVMFA)	Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki

V. AUTHOR AFFILIATIONS

NS. Non-Soviet

0. Affiliation not given
1. Physics Institute imeni Lebedev, AN SSSR (Fizicheskiy institut imeni Lebedeva AN SSSR).
2. Moscow State University (Moskovskiy gosudarstvennyy universitet).
3. Institute of Physics, AN BSSR (Institut fiziki AN BSSR).
4. Physicotechnical Institute im Ioffe, Leningrad (Fiziko-tekhnicheskiy institut im Ioffe).
5. Institute of Physics, AN UkrSSR (Institut fiziki AN UkrSSR).
6. Institute of Semiconductors, AN UkrSSR (Institut poluprovodnikov AN UkrSSR).
7. State Optical Institute im Vavilov, Leningrad (Gosudarstvennyy opticheskiy institut im Vavilova).
12. Leningrad State University (Leningradskiy GU).
13. Institute of Crystallography, AN SSSR (Institut kristallografiya AN SSSR).
14. University of Friendship Among Nations im Lumumba, Moscow (Universitet druzhby narodov im Lumumby).
15. Institute of Radio Engineering and Electronics, AN SSSR (Institut radiotekhniki i elektroniki AN SSSR).
16. Moscow Engineering Physics Institute (Moskovskiy inzhenerno-fizicheskiy institut).
17. Institute of Problems of Mechanics, AN SSSR (Institut problem mekhaniki AN SSSR).
21. Acoustics Institute, AN SSSR (Akusticheskiy institut AN SSSR).
23. Institute of Atomic Energy im Kurchatov, Moscow (Institut atomnoy energii im Kurchatova).
24. Moscow Higher Technical College im Bauman (Moskovskoye vyssheye tekhnicheskoye uchilishche im Baumana).
29. Leningrad Polytechnic Institute (Leningradskiy politekhnicheskiy institut).
30. Leningrad Institute of Precision Mechanics and Optics (Leningradskiy institut tochnoy mekhaniki i optiki).
36. Physicotechnical Institute of Low Temperatures, AN UkrSSR, Khar'kov (Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR).
37. Yerevan State University (Yerevanskiy GU).
38. Kazan' Physicotechnical Institute (Kazanskiy fiziko-tekhnicheskiy institut).
41. Rostov-on-Don State University (Rostovskiy-na-Donu GU).
44. Institute of Applied Physics, AN MSSR (Institut prikladnoy fiziki AN MSSR).
45. Saratov State University (Saratovskiy GU).
47. Siberian Physicotechnical Institute im Kuznetsov, Tomsk (Sibirskiy fiziko-tekhnicheskiy institut im Kuznetsova).
49. Vilnius State University (Vil'nyusskiy GU).
51. Kiev State University (Kiyevskiy GU).
59. Institute of Physics Research, AN ArmSSR (Institut fizicheskikh issledovaniy AN ArmSSR).
63. Institute of Physics, AN LatSSR (Institut fiziki AN LatSSR).
65. Institute of Problems of Physics, AN SSSR (Institut fizicheskikh problem AN SSSR).
66. Institute of Solid State Physics, AN SSSR (Institut fiziki tverdogo tela AN SSSR).
67. Institute of Physics of Chemistry, AN SSSR (Institut khimicheskoy fiziki AN SSSR).
71. Institute of Applied Mathematics, AN SSSR (Institut prikladnoy matematiki AN SSSR).

72. Institute of Spectroscopy, AN SSSR (Institut spektroskopii AN SSSR).
73. Institute of Theoretical Physics im Landau, AN SSSR (Institut teoreticheskoy fiziki im Landau).
74. Institute of High Temperatures, AN SSSR (Institut vysokikh temperatur AN SSSR).
75. Institute of Automation and Electronic Measurements, Siberian Branch, AN SSSR (Institut avtomatiki i elektrometrii SOAN).
77. Institute of Inorganic Chemistry, Siberian Branch, AN SSSR (Institut neorganicheskoy khimii SOAN).
78. Institute of Atmospheric Optics, Siberian Branch AN SSSR (Institut optiki atmosfery SOAN).
79. Institute of Nuclear Physics, Siberian Branch, AN SSSR (Institut yadernoy fiziki SOAN).
82. Physicotechnical Institute, AN UkrSSR, Khar'kov (Fiziko-tekhnicheskiy institut AN UkrSSR).
87. Belorussian State University (Belorusskiy GU).
94. Gor'kiy State University (Gor'kovskiy GU).
98. Institute of Nuclear Physics at Moscow State University (Institut yadernoy fiziki pri Moskovskom GU).
106. Kiev Polytechnic Institute (Kiyevskiy politekhnicheskiy institut).
107. Khar'kov State Scientific Research Institute of Metrology (Khar'kovskiy gos NII metrologii).
109. Latvian State University (Latviyskiy GU).
110. Leningrad Electrotechnical Institute (Leningradskiy elektrotekhnicheskiy institut).
118. Moscow Physicotechnical Institute (Moskovskiy fiziko-tekhnicheskiy institut).
121. Moscow Institute of Chemical Machinery (Moskovskiy institut khimicheskogo mashinostroyeniya).
122. Scientific Research Institute of Physicochemistry im Karpov (NI fiziko-khimicheskoy institut im Karpova).
128. Ryazan' Radiotechnical Institute (Ryazanskiy radiotekhnicheskiy institut).
137. Voronezh State University (Voronezhskiy GU).
138. Voronezh Polytechnic Institute (Voronezhskiy politekhnicheskiy institut).
140. All-Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements (VNII fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy).
141. All-Union Scientific Research Institute of Opticophysical Measurements (VNII optiko-fizicheskikh izmereniy).
147. Moscow Highway Institute (Moskovskiy avtodorozhnyy institut).
155. North Ossetian State University (Severo-Osetinskiy GU).
159. Institute of Thermophysics, Siberian Branch, AN SSSR (Institut teplofiziki SOAN).
161. Moscow Institute of Radio Engineering, Electronics and Automation (Moskovskiy institut radiotekhnika, elektroniki i avtomatiki).
168. Institute of Electric Welding im Paton, AN UkrSSR (Institut elektrosvarki im Patona AN UkrSSR).
174. Scientific Research Institute of Organic Intermediates and Dyestuffs, Moscow (NII organicheskikh poluproduktov i krasiteley).
177. Riga Institute for Civil Aviation Engineers (Rizhskiy institut inzhenerov grazhdanskoy aviatsii).
180. Institute of Heat and Mass Exchange, AN BSSR (Institut teplo- i massoobmena AN BSSR).
184. Institute of Geochemistry and Analytical Chemistry im Vernadskiy, AN SSSR (Institut geokhimii i analiticheskoy khimii im Vernadskogo AN SSSR).
185. Gor'kiy Polytechnic Institute (Gor'kovskiy politekhnicheskiy institut).

190. Central Scientific Research Institute of the Maritime Fleet (Tsentral'nyy NII morskogo flota).
193. Institute of Theoretical and Applied Mechanics, Siberian Branch, AN SSSR (Institut teoreticheskoy i prikladnoy mekhaniki SOAN).
206. Institute of Geology and Geophysics, Siberian Branch, AN SSSR (Institut geologii i geofiziki SOAN).
210. Institute of Physics, Siberian Branch, AN SSSR (Institut fiziki SOAN).
215. Physicotechnical Institute, AN TadzhSSR (fiziko-tekhnicheskii institut An TadzhSSR).
216. Kazan' Aviation Institute (Kazanskiy aviatsionnyy institut).
220. Institute of Experimental Meteorology (Institut eksperimental'noy meteorologii).
229. Moscow Aviation Technological Institute (Moskovskiy aviatsionnyy tekhnologicheskii institut).
231. Scientific Research Institute of Motion Pictures and Photography (NI kinofotoinstitut).
247. Scientific Research Institute of Electrophysical Equipment im Yefremov, Leningrad (NII elektrofizicheskoy apparatury im Yefremova).
248. Institute of Mechanics at Moscow State University (Institut mekhaniki pri Moskovskom GU).
251. Tomsk Institute of Automatic Control Systems and Radioelectronics (Tomskiy institut avtomatizirovannykh sistem upravleniya i radioelektroniki).
276. Institute of Physics of the Earth im Shmidt, AN SSSR (Institut fiziki Zemli im Shmidta AN SSSR).
283. Institute of Physics of Metals, AN UkrSSR (Institut metallofiziki AN UkrSSR).
297. Institute of Chemistry, AN SSSR, Gor'kiy (Institut khimii AN SSSR).
313. Scientific Research Institute of Applied Physics at Irkutsk State University (NII prikladnoy fiziki pri Irkutskom GU).
325. Scientific Research Institute of Physics, Rostov-on-Don (NII fiziki, Rostov-na-Donu).
332. Frunze Polytechnic Institute (Frunzinskiy politekhnicheskii institut).
334. Scientific Research Institute of Applied Physical Problems at Belorussian State University (NII prikladnykh fizicheskikh problem pri Belorusskom GU).
379. Gomel' State University (Gomel'skiy GU).
405. Institute of Hydromechanics, AN UkrSSR (Institut gidromekhaniki AN UkrSSR).
424. Voroshilovgrad Mechanical Engineering Institute (Voroshilovgradskiy mashinostroitel'nyy institut).
426. Institute of Applied Physics, AN SSSR, Gor'kiy (Institut prikladnoy fiziki AN SSSR).
458. Kuybyshev Pedagogical Institute (Kuybyshevskiy pedagogicheskii institut).
492. Institute of Physics, AN EstSSR (Institut fiziki AN EstSSR).
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- 515. Kiev Correspondence Department of the Odessa Electric Engineering Institute of Communications (Kiyevskiy zaachnyy fakul'tet Odesskogo elektrotekhnicheskogo instituta svyazi).
- 516. Kuzbass Polytechnical Institute (Kuzbasskiy politekhnicheskiy institut).
- 517. Leningrad Medical Institute of Public Health (Leningradskiy sanitarno-gigiyenicheskiy meditsinskiy institut).
- 518. Institute of Obstetrics and Gynecology, AMN SSSR (Institut akusherstva i ginekologii AMN SSSR).
- 519. Kazan' Scientific Research Institute of Photographic Technology Planning (KazNIITEKhfotoprojekt)
- 520. State Astronomical Institute im Shternberg (Gosudarstvennyy astronomicheskiy institut im Shternberga)
- 522. Smolensk State Pedagogical Institute (Smolenskiy gos ped institut).
- 524. Novosibirsk Institute of Railroad Engineers (Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta).

VI. AUTHOR INDEX

AAVTSOU YA YU	42, 103	ANISTRATOV A T	104	BAKHRAKH L D	87	BELOV N M	51
ABKUMOV B M	71	ANTABLYAN O G	14	BAKULIN YU D	120	BELOV V F	52
ABUULLAYEV G B	103	ANTIPEKDO B M	104	BALAKIN A A	101	BELOVOLOV M I	47
ABRAMOCHKIN A I	48	ANTIPIV A A	100	BALAKIREV V V	50	BEL'SKAYA-	
ABRAMOVSKIY A P	27	ANTIPOV A B	49	BALAYEV V I	46	LEVANDOVSKAYA G	86
ABROSIMOV V M	116	ANTIPOV V S	114	BALASHOV A M	69, 71	BEL' TS V A	51
ACHASOV O V	11, 18	ANTONOV A S	15	BALOSHIN YU A I	1	BELYAKOV L V	72
ADAMOV I YU	114	ANTONOV V S	79	BALYKIN V I	105	BELYAKOV V M	98
ADAMOVICH V A	11	ANTOSHIN V S	51	BAN' KOVSKAYA YE N	105	BELYAKOV YU M	25
ADZHALOV V I	70	ANTROPOV YE T	19	BAPTIZMANSKIY V V	105	BELYAYEV A G	87
AFANAS' YEV YU V	118, 119	ANZIN V R	104	BAPTIZMANSKIY V V	112	BELYAYEV YE B	51
AGAHALYAN N R	2	APATIN V M	79	BARACHEVSKIY V A	3	BENDERSKIY V A	87
AGAHREKYAN K A	48	APOLLONOV V V	11, 27, 83	BARANOV P G	83	BEREZHNYY I A	72
AGAPOV G A	117	ARDASHEVA M M	120	BARANOV S A	5	BEREZIN A B	88
AGEYEV B G	49	ARKATOVA T G	104	BARANOV V M	11, 12, 120	BERNDT K	8, 106
AGURKOVA T N	45	ARKHIPKIN V G	31	BARANOV V YU	87	BESPALOV V I	35
AKHMEDIEV N N	31	ARMAND S A	49	BARKOVA A V	105	BESSONOVA T S	41
AKHMEDZHANOV F R	93	ARTEMKIN YE YE	50	BARKOVSKIY L M	80	BETEROV I M	80
AKOPOV R A	14	ARTSIMONICH L A	125	BARONOV G S	72	BEVOR R K	11
ALAYERIDYAN S A	5	ARUTYUNYAN A S	48	BARS F M	100	BEZHEL' NITSYN V N	22
AL' BAKH A A	28	ARUTYUNYAN F R	14	BARYSHEVSKIY V G	37	BEZMENOV V YA	120
ALDOSHIN M I	115	ASHKINADZE D A	51	BARYSHNIKOV A S	100	BIKEYEV O N	31, 47
ALEKSANDROV K S	33	ASINOVSKIY E I	15, 25	BARYSHNIKOV V F	83	BIRMAN A YA	88, 106
ALEKSANDROV V V	119	ASNIN V M	79	BASARGIN I V	87	BLAKHOVSKAYA T V	51
ALEKSEYEV A I	38	AUDRING N A	24	BASHKIN A S	38	BLOK V P	34
ALEKSEYEV V A	104	AVANESOV A G	50	BASHKIN T T	19	BLOKHIN V A	98
ALEKSEYEV V N	7	AVDEYEVA V I	105	PASIYEV T T	3, 105	BOROVICH L I	2
ALINOV K K	73	AYERBAKH V S	103	RASKIN E M	105	BOBOVICH YA S	106
ALINOV KH R	46	AYERIN V G	36	RASOV A A	83	BORRITSKAYA D I	63
ALIMPIYEV S S	79	AYER' YANOV N YE	80	RASOV N G	12, 79, 119	BORROV B V	52
ALIT' YEV YU M	119	AYER' YANOV V L	11	RATANOV V A	7	BORULESCU R C	8, 14, 106
ALKHIMOV A P	86	AVETISYAN YU O	100	HATASHEV S P	29	BOCEK V	88
ALLAKHVERDIYEV K R	103, 104	AZAROVA V V	31	EATENIN V M	15	BOCHKOV D S	52
ALMAYEV R KH	49	AZINOV B S	31	BATOVRIN V K	24	BODO B	125
AL' PEROVICH M A	103			BAYANOV V I	121	BODUNOV YE N	74
ALTYNBAYEV R	5			BAYEV V K	87	BOGATOV A P	4
AMASOVICH YE S	114			BAYKOVA N D	71	BOGDANOV YE I	48
AMARTSUMYAN R V	79			BAZYLENKO V A	10	BOGDANOVICH U YA	45, 125
AMELIN A D	90			BEKETOVA A K	87	BOGOMOLOV G D	88
AMITIN L N	104			BEKTURGANOV B K	50	BOGOMOLOV K S	73, 77
ANCHUTKIN V S	83			BELANOV A S	47	BOGOMOLOV V G	24
ANDREYEV G A	49			BEL' DYUGIN I M	34	ROMM J	2
ANDREYEV YU S	71, 72			BELENOV E M	47, 83	ROMAN P A	15, 16, 121
ANDREYEVA O V	1			BELEVTSV A A	21	BOL' SHOV L A	7, 38, 121
ANDRIAS' YAN KH S	46			BELEVOSEV V A	104	BONCH-BRUYEVICH A M	38, 106
ANDRONOV V A	46			BELKIN M S	50	BONCH-OSMOLOVSKIY M N	86
ANDRUSHKO L M	46			BELKIN S N	91	BORIN A V	72
				BAGDASAROV KH S	86	BORISOV B D	52
				BAGDASAR' YAN KH S	81	BORISOV V I	24
				BAGDATASHVILI V N	80	BORISOVA N E	97
				BAKHAREV M S	115		

BORODAVKO A N	52	CEAUSESCU N	8, 14, 106	DAS'KO A D	8	DUDINA N S	32
BORODKINA M A	93	CHAMROV V A	42	DAUTOV G YU	25	DUERR H	8
BOROVIK-ROMANOV A S	100	CHAPNIN V A	5	DAVARASHVILI O I	6	DUGIN V P	53
BOROVKOVA V A	81	CHAPOVSKIY P L	14	DAVYDOV A YE	89	DUKHOVNYY A M	121
BOROVY A G	52	CHASHIN D V	28	DAVYDOV B L	39	DUREYKO G V	94
BOROVY V YA	120	CHAYANOVA E A	62	DEGUSHENKO K B	116	DUTKA T	47
BORTNIKOV V M	99	CHAYKOVSKAYA L I	66	DEGTAREV L M	7	DVORNIKOV G D	116
BORTSOV V R	4	CHAYKOVSKIY A P	70	DEKHTYAR I YA	81, 100	DYABIN N N	50
BORTZENKO V L	120	CHAYVANOV B R	22	DELONE N B	28, 81	DYABIN YU P	53
BOYKO I I	30	CHEROTAREV N F	22	DEMCHENKO N N	118, 119	D'YACHENKO V V	86
BOYTSOV A A	117	CHEROTAYEV V P	83	DEMCHENKO V V	101	D'YACHENKO A L	84
BOYTSOV V F	88	CHELNOKOV V YE	5	DEMENEV A YE	96	DYAD'KIN A P	79
BOZHEVOLNYY S I	26	CHEL'TSOVA I V	75	DEMENTIYENKO V V	5	D'YAKOV A S	12
BOZHKOVA A I	37	CHEREDNICHENKO O B	32	DEMENT'YEV D A	7	DYKHNE A M	7, 121
BOZNAYA S V	78	CHEREPAKOV A P	83	DEMENT'YEV I M	87	DYMSHITS YU I	27
BRAZEMSKI K	38	CHEREPAKOV V N	49	DEMIN A I	20	DYUKALOV V V	65
BRENZER V	31	CHEKASOV YE M	12	DEMOCHKO YU A	115	DZHAGAROV B M	112
BREUSOVA L N	13	CHEKASOV YU A	72	DENISOV V V	65	DZHAGAROV B M	107
BRITAN A B	19	CHEKASOV YU A	35, 38	DENISOV V V	105	DZHIKLADZE M I	7
BRODIN M S	4, 106	CHEKASOV YU A	102	DENISOV V V	52	DZHIKLADZE M I	26
BRODSKAYA E S	88	CHEKASOV YU A	76	DERIGLAZOV N P	29	DZHIKLADZE M I	70
BRUTAN E G	106	CHEKASOV YU A	7	DERKACHEVA L I	11	DZIGASOV A G	5
BRYKOV V G	98	CHEKASOV YU A	85, 86	DERYUGIN L N	31, 47	DZYANKO S S	97
BRZHANOVSKIY YU V	80	CHEKASOV YU A	109	DERZHAYIN S I	11		
BUCZYNSKI Z	99	CHEKASOV YU A	85	DERZHAYIN S I	92, 122	E	
BUDAGYAN I F	72	CHEKASOV YU A	69, 71	DERZHAYIN S I	46, 80		
BUDAY A G	87	CHEKASOV YU A	107	DEYATYKH G G	46, 47	ECHESTERMEYER F	26
BUKATY V I	52	CHEKASOV YU A	40, 65	DIANOV YE M	12	EKONOMOV N A	71
BUKHALENKO V V	100	CHEKASOV YU A	83	DIDYUKOV A I	110	EPSTEYN V SH	31
BULKIN V M	87	CHEKASOV YU A	114, 124	DITE A F	99	ESSEL'BAKH P B	102
BUNKIN F V	37	CHEKASOV YU A	106	DIVNICH N P	32		
BURLAKOV V D	15	CHEKASOV YU A	31	DMITRIYEV V G	112	F	
BURON R	96	CHEKASOV YU A	57	DMITRIYEV V G	88, 89	FARRIKOV V A	84
BURTSOV V A	98	CHEKASOV YU A	41, 107	DMITROISA I I	51	FADEYEV V M	59
BURYKIN N M	94	CHEKASOV YU A	33	DMITROISA I I	89	FADEYEV V YA	61, 64
BUSHUK B A	111	CHEKASOV YU A	99	DOBRYNIN B M	121	FADEYEV YU A	106
BUSHUYEVA G V	64	CHEKASOV YU A	80	DOLGINOV A Z	80	FADIN L V	17
BUTENIN A V	41	CHEKASOV YU A	67	DOLZHIKOV V S	41	FAVORSKIY A P	121, 122
BUTUSOV M M	73	CHEKASOV YU A	111	DOMRACHEV G A	50, 51, 53	FAYERNAN G P	77
BUZHINSKIY I M	115	CHEKASOV YU A	99	DONCHENKO V A	68, 83	FAYNSHTEYN S M	121
BYCHEMKOV V YU	119	CHEKASOV YU A	9	DOTSSENKO S V	61	FEICHUK I U	73
BYCHKOV V D	14	CHEKASOV YU A	95	DOVATOR N A	39	FEDOROV V A	2
BYKOV A D	49	CHEKASOV YU A	48	DREYGIN YU A	28	FEDOROV V B	7, 26
BYKOVSKAYA L A	107	CHEKASOV YU A		DROBYAZKO S V	121	FEDOROV V F	16, 18
BYKOVSKIY YU A	121	CHEKASOV YU A		DUBININA YE A	12	FEOTOV A P	107
BYSTROV P I	27	CHEKASOV YU A		DUBROVSKIY A V	118	FEOTOV S I	123
BYTEVA I M	82, 112	CHEKASOV YU A		DUDAR' L N	43	FEOTIK N S	55
		CHEKASOV YU A			58	FESHCHENKO V P	85
		CHEKASOV YU A					35

KALEDIN V O	91	KAZAYEVICH V S	12	KIZNEROVA V M	28	KONEV YU B	19
KALININ A V	122	KAZAROV A A	32	KLENENT'YEV V M	84	KONENKO I I	74
KALININ I V	122	KAZAROV B N	?	KLINA M	27	KONONOV I G	11
KALININ V A	43	KAZAROV S A	12	KLINENKO M M	91	KONOPLIN S N	3
KALININ V P	25	KAZANIZHAN E P	91	KLINKIN V M	10, 15, 16, 17	KONOV A S	46
KALINOV V S	85	KAZANTSEV A P	3	KLINTONOVICH YU L	36	KONVALOV V A	32
KALYUZHNAYA G A	117	KAZARYAN M A	99	KLINOVSKIY I I	15	KONVALOVA N A	94
KAMALCH YU E	99	KHABURZANIYA G V	7	KLINZO E F	74	KONSTANTINOV B A	57
KAMALOV I A	91	KHADZHI P I	91	KLIN V P	71	KONSTANTINOVSKIY V A	87
KAMARZIN A A	104	KHANOV V A	91	KLIOPOV M M	89	KOPA-OVDIYENKO A L	7
KAMINSKIY A A	2	KHARISOV G G	4	KLOSE E	8, 100, 106	KOPTEV V G	39
KANDIDOV V P	55, 55, 66	KHARITONENKO E P	26	KLUSHIN V N	34	KOPYLOV S M	32
KAPITANOV V A	49	KHARITONOVA A I	73, 76	KLYAVIN' SH YA P	82	KOPYTIN YU D	51
KAPITSA P L	122	KHARITONSKIY S YA	100	KNYAZEV I N	13, 79, 108	KORBUITYAK D V	109
KAPLUN L YA	73	KHARLANOV V F	104	KNYUPFER A P	84	KORDONSKIY KH B	113
KAPTSOV L N	24	KHASANOV O KH	69	KORYLYANSKIY A I	81	KORDONSKIY A A	86
KAPUSTIN A A	91	KHATYREV N P	85	KOCHAROVSKAYA O A	43	KORNER S V	114
KARARUT E K	14	KHAYBULLIN I R	77	KOCHELAP V A	23	KORNYU A	109
KARAMZIN YU N	31	KHAYKIN N SH	84, 85	KOCHUREY S A	14	KORDITSYN V A	27
KARANBASHEV V A	115	KHAYUTIN L M	21	KOCHUREY S M	108	KOROKIN V V	98
KARAS V I	113	KHIZHNYAK A I	75	KOENLER G	118	KOROKOV V I	90
KARASIK A YA	105	KHLESKOVA T N	85	KOGAN B YA	41	KOROLENKO I M	116
KARCHEVSKIY A I	80	KHMELEVTSOV S S	63	KOHN H	73	KOROLEV A YE	121
KARGAPOL'TSEV V S	4	KHMEL'NITSKIY G S	56	KOKHANENKO U P	38	KOROLEV F A	24
KARIMOV M G	45, 125	KHOKHLOV E M	79	KOLBANOVSKAYA N A	84	KORONKEVICH V P	91
KARIMOVA L M	50	KHOKHLOV G I	49	KOLBASOV G YA	4	KOROTAYEVA YE A	109
KARIN M G	104	KHOLODOV YU V	56	KOLBYCHEVA P D	17	KOROTKOV A M	28
KARKACH S P	43	KHOLOV A	86	KOLBASHOV G A	1	KORYABIN A V	92
KARKOV N V	79	KHUMICH V YU	27, 83	KOLENKIN M YU	43	KORYAKOVSKIY A S	25
KARMANOV G A	18	KHONYAKOV A N	115	KOLENNIKOV P I	70	KOSACHEV V V	115
KARMANOV S M	115	KHRANOV A G	77	KOLESNIK A I	19	KOSHEL'KOV V A	10
KARPENKO S G	32	KHRANOV B V	77	KOLESNICHENKO YE G	55	KOSICHKIN YU V	104
KARPENKO V A	24	KHRONDPULO YU G	34	KOLESNIKOV I M	48	KOSOROKOVA N L	77
KARPISHIN V V	53	KHURGIN YA B	11	KOLOHOV A V	120	KOSTANYAN R B	1
KARPOVA I V	101	KIEBURG H	3	KOLOZIEJ J	99	KOSTENKO V A	10
KARPUKHIN V I	19	KIPEN' A A	4	KOLOZIEJSKI R	99	KOSTKO O K	66
KARTASHOVA O A	74	KIRCHEVA P	34	KOLODRLOV A A	119	KOS'YANENKO A B	56
KARTAZAYEVA S A	69	KIRICHENKO T K	7	KOLOMENSKIY AL A	37	KOTLOV YU N	104
KARUS YE V	46	KIRILLIN A V	25	KOLMIYETS R T	100, 103	KOTLYARCHUK B K	82
KARYAZOVA E V	93	KIRILLOV N I	125	KOLOSOV V V	67	KOTOV A M	55
KATAYEV I G	83	KIRILOV A YE	16, 17, 18	KOLOSOV YU A	87	KOTOVA S P	71
KATSEV I L	55, 56	KIRKACH YE F	79	KOLTUN V L	10	KOTYUK A F	84, 85, 86
KATULIN V A	29	KIRPICHNIKOV A V	3	KOLYSHKIN V I	6	KOVAL' G I	77
KAUFMAN S A	84, 86	KIRSANOV A V	13	KOMAR V G	74	KOVAL'CHUK YU V	122
KAVKYANDOV S I	56	KIRYUKHIN YU I	81	KOMISSAROVA I I	122	KOVALEV P I	92
KAYGORODOV V A	109	KISELEV V P	121	KOMISSARUK V A	91, 92	KOVALEVSKIY A D	71
KAYRO V S	56	KISLOV V I	24	KOMOLOV V L	38	KOVSH I B	12
KAYUMOVA G V	79	KISLOVSKIY L D	103	KONDRATENKO A M	42	KOTAVA V T	9
KAYUSHKIN V A	79	KISLYAKOV V B	89	KONDRAT'YEV V S	55	KOZACHENKO M L	84, 86
KAZAK V L	91	KITYASHKINA G S	15	KONENKOV N V	10	KOZHEVNIKOV A N	52, 56

KOZHUKHOVSKIY N N	100	KUCHAYEV S V	115	LAGUNOV A S	93	LOSKUTOV V F	117
KUZIN G I	92	KUCHINSKIY V V	86	LAKHTIONOV V I	75	LOSKUTOV V V	120
KOZINTSEV V I	57	KUDRYAVTSEV I K	44, 101	LAKIN YU G	117	LOYKO N A	84
KOZLOV A P	45	KUDRYAVTSEV N N	19	LANDA P S	9	LOYKO V A	75
KOZLOV G I	101	KUDRYAVTSEV YE M	26	LANRATOV S V	24	LOZOVSKIY P M	102
KOZLOV L F	90	KUEHN H	29, 84	LARIKOV A V	42	LUCHINSKIY A V	120
KOZLOV V F	19	KUFERT S	29	LARINA R R	115	LUGIN E V	58
KOZLOV V S	57, 84	KUKHAROV V N	17	LARIONOV YU P	93	LUGOVOY V I	101
KOZLOVSKIY YE N	99	KUKHARSKIY A A	104	LASHKOV G I	74	LUGOVOY V L	108
KOZODEROV V V	57	KUKHTAREV N V	30	LATYSHEV N N	50, 51	LUGOVOY V N	34
KOZYREV YU P	121	KUKK P L	42	LAU A	34	LUKICHEVA A V	111
KRAKAL YU A	77	KULAKOV YU I	53	LAVRISHCHEV V P	82	LUKIN A V	2
KRASNIKOV N S	80	KULIKOV S YU	80	LAZAREV V D	98	LUKIN I V	101
KRASNOLOB N P	108	KULIKOV V V	74	LAZARUK A M	34, 39	LUKOSHKOV S V	58
KRASNOSHCHKOVA YE YE	45, 46	KULINKIN B S	109	LEVANDOVSKIY S YU	86	LUK'YANCHIKOV N I	70
KRASNOVA T L	125	KULYASOV A G	93	LEBEDEV O L	29	LUK'YANETS YE A	29
KRASYUK I K	27	KUNAKHOV M A	42, 80	LEBEDEV V I	24	LUPYSHEV S A	8
KRAULINYA E K	82, 126	KUNAVIN A T	15	LEBO I G	122	LUTKOVSKIY V M	52
KRAVCHENKO V F	14	KUNIN YU A	19	LEMANOV V V	93	LUTOSHKIN V I	94
KRAYNOV V P	81	KURASHOV V N	105	LENGAUER YE S	4	LUZGIN S N	36
KRAYSKIY A V	71	KURBASOV V V	74	LENZ K	34	LYAKHOV G A	9, 39
KREAS A R	56, 57	KURBASOVA G S	97	LEONTOVICH A M	1, 42	LYAMSHEV L M	37
KREKOV G M	87	KURIK M V	89, 93	LETOVCHENKO V G	101	LYAPIDEVSKIY V K	123
KREMENTSKIY S D	125	KUROCHKIN A P	39	LETOKHOV V S	46, 79, 80, 105	LYASHENKO V I	108
KREOPALOVA G V	36, 100	KUSHIN V V	87	LETUNOV A A	88	LYSENKO V G	34
KREYNES N M	109	KUTAYEVA G S	109	LEZHAVA B S	7	LYTKIN A P	4
KREYNGOL'D F I	92	KUTIKOVA N P	123	LI G	5	LYUBCHENKO A V	103
KRIEG W	66	KUZIKOVSKIY A V	75	LIEBENSON M N	38	LYUBCHENKO V V	2
KRIKUNOV G A	9	KUZNETSOV A A	57, 67	LIBERMAN A A	28, 86	LYUBIN V M	100, 103
KRINGACH D P	87	KUZNETSOV A I	104	LIBERMAN M A	123	LYURLIN B V	88
KRINITSYNA L F	1	KUZNETSOV L I	93	LIBERSON R M	112	LYUBOVITSEVA YU S	58
KRIVENKO A G	3	KUZNETSOV M M	104	LIPTUGA A I	30	M	
KRIVOSHCHEKOV G V	116	KUZNETSOV V A	20	LISENKA H S	105		
KROCHIK G M	34	KUZNETSOV V L	101	LISLISA M P	74	MAK A A	1, 121
KROKHIN O N	118, 119	KUZNETSOV V M	43	LISKA M	88	MAKAROV A A	80
KROTOV YU A	44	KUZNETSOV V V	20	LITOVCHENKO V G	109	MAKAROV A I	36
KRUPITSKIY E I	76	KUZNETSOV T A	57	LITUNOVSKIY V N	88	MAKAROV V A	39
KRUPNOVA L V	118, 123	KUZOVKOVA B A	30	LITVINENKO G I	37	MAKEYEV A A	70
KRUTIKOV V A	68, 69	KWIEE P	12	LITVINOV O S	87	MAKOGON M M	110
KRUTYAKOVA V P	116	KWIETNIAK M S	93	LITVINOVA O A	36	MAKSIMOVA E V	110
KRYUCHKOVA O I	92	KYASHKIN V M	109	LIVSHITS G S	50, 54, 58	MAKSIMOVA G V	105
KRYUKOV P G	46		114	LOBANOV V S	114	MAKUSHKIN YU S	49
KRYUKOVA I V	4			LOBKO V V	108	MALAKHOV L N	25
KRZHIZHANOVSKIY R YE	91			LOBKOVA L M	58	MALAKHOVSKIY V R	70
KTALKHERMAN M G	19	L		LOGINOV A P	29	MALEVICH I A	52, 55
KUBASOV V A	88	LABUDA S A	11, 18	LOKHOV YU N	37, 115	MALINOVSKIY V K	103
KUCHARSKI M	74	LADANOV A I	24	LOPASOV V P	49, 58, 67, 110	MALKOV A N	7
		LADOGA V B	121	LOSEV A S	23	MAL'KOV V M	19
				LOSEV S A	19	MALOMED B A	40

MALOV A N	78	MAYSTRENKO V I	40	MIROVITSKIY D I	72	NAGIBAROVA I A	68
MAL' SHAKOV V G	30	MAZHUKIN V I	114 124	MIRTOVA S A	113	NAKHUTIN I YE	55
MAL' TSEV A T	17	MAZHURA S C	91	MIRTSKHULAVA N I	79	NAKUMSKI M J	6
MAL' TSEV A N	10 121	MAZMANIANTS A P	17	MIRZA S YU	8 17	NALIMOV I P	73 75
MAL' TSEV V S	117	MAZURENKO M M	94	MISHAREVA N I	58	NAM R P	71
MALYAROVSKIY A I	37	MEDOVNIKOV A S	94	MISHIN G I	20 87 90 92	NAMLOT V A	40
MALYIN G B	32	MEDVEDEVA M G	94	MISHIN I V	94 95 126	NANCIU C	48
MALYUTA D D	120	MEKHRYAKOVA N G	29	MISHIN V I	57 59 60	NANI R KH	103
MALYUTENKO V K	30	MEL' CHENKO V S	18	MISHIN YE V	105	NAPARTOVICH A P	12 21
MAMEDOV T S	117	MELEKHIN G V	10	MISHINA YE D	46	NARZULLAYEV K N	4
MAMONOVA I G	58	MELEKHOV P V	94	MITSSEL' A A	102	NASYROV A N	93
MARAK I S	87	MELESHKO A N	44 101	MITYUSHEVA I V	51 59 65	NAUMOVA T N	109
MANDZHIKOV V F	82 112	MEL'NIK N N	107	MIZIN V M	102	NAZARALIYEV M A	54 60
MANENKOV A A	115 116	MENDE N P	91 92	MIZRUKHIN L V	29	NAZARKIN A V	33
MANISHIN V G	35	MENENKOV V D	20	MOCHALOV A V	75	NECHAYEV S N	49
MANITA O F	15	MERTEN L	30	MOGIL'NITSKIY S R	98	NECHITAYLO V S	115
MANKEVICH S K	30	MERZLYAKOV A V	35	MOHR U	63	NEGUZHIY S A	75 95
MAN KO M A	4	METEL'NIKOV A A	80	MOROV V F	40	NEKRYLOVA A I	111
MANYKIN E A	59	METSIK V M	27	MOISEYEV S S	113	NELEPO B A	61
MANZHARA V S	113	MEYER W	33	MOLOCHEV V I	4 71	NEMCHINOV I V	113
MANZHURA YU G	47	MEZHNEVOV B S	75	MONASTYREV S S	15 17	NEKHOVICH N A	9
MARASIN L YE	93	MEZHNOV-DEGLIN L P	12	MORICHEV I YE	102	NEKYH G F	73
MARCHENKO S N	71	MIHAILESCU I N	110	MOROZOV A M	60	NEPOKOYCHITSKIY A G	110
MARCHENKO V M	25	MIKHAEL'YAN G T	95	MOROZOV A V	27	NERUKH A G	75
MARCHEVSKIY F N	35	MIKHALEV A N	4	MOROZOV M G	15	NEUMANN G	112
MARCZAK J	30	MIKHALEVICH V G	92	MOROZOV V N	80	NIKIFOROV V G	57
MARENINIKOV S I	3	MIKHALEVSKIY V S	37	MOROZOVA A V	71 94	NIKIFOROVA N K	57
MARGOLIN A D	20 82	MIKHAYLIN V V	14	MOSKALENKO N I	64	NIKITENKO V A	110
MARICHEV V N	59	MIKHAYLOV B A	102	MOSKALIK K G	56 60	NIKITIN M V	84
MARKOVETS V V	25	MIKHAYLOV I A	104	MOSTOSLAVSKIY M A	45	NIKITIN V V	4 14 76
MARKOVICH I E	113	MIKHAYLOV L K	77	MOTSNIY F V	82	NIKOLAYENKO A N	95
MARKOVIN P A	101	MIKHAYLOV V A	32	MOVSEYEV V G	74	NIKOLAYEV V D	114
MARTYNOVICH YE F	41	MIKHAYLOV YU A	83 96	MOVSEYEV YU K	13 79	NIKOLAYEV V P	51
MASAGUTOVA R V	33	MIKHAYLOVA G N	123	MUNSER R	31	NILOV YE V	30
MASALOV A V	28	MIKHAYLOVA V I	84	MUSGA A A	26	NISHCHEMENKO YU P	19
MASARNOVSKIY L V	8 17	MIKHAYLOVA V I	77	MOZHAROVSKIY A M	26	NISHCHENKO M M	81 100
MASHKO V V	85	MIKHEYESKO A V	31	MOZHUKHIN YE V	1	NISTON L C	95
MASHNIKOV N N	94	MIKHEYES VU S	28	MUELLER-VOGY G	23	NISTON S V	95
MASLENNIKOV V G	89	MILANICH A I	72 73	MUNSER R	75	NOGA M	102
MASLYUKOV A P	115	MILENIN V M	81	MUNSER R	75	NOLLE P M	48
MATSEYKO V A	101	MILER M	13	MUSTAFIN K S	75	NOSACH V YU	29
MATSEYKO V I	9	MILLOVIDOVA S V	48	MUSTAFINA L T	75	NOVAK I I	105
MATSKO M G	106	MILYUKOV YF M	87	MUZIK J	74	NOVIKOV M A	110
MATCONASHVILI B N	108	MILYUTIN YE R	116	MYSOVSKIY S N	41	NOVIKOV N P	116
MATVEYEV I N	59	MINCHEV G G	59	N		NOVIKOV S S	19
MATVILY V I	89	MINNIGULOV A M	70	NATS I F	65	NOVIKOV V P	110
MATYUGIN YU A	84	MIRKIN L I	25	NAGAYEV A I	30	NOVOPASHIN S A	93
MATYUK V M	79	MIRONOV V L	114 115	NAGIBAROV V R	68 69		
MATYUSHKIN E V	102	MIROV S B	59 68				
MAYOROV S A	76						

OR YEDKOV A M	41	PAPULOVSKIY V F	24	PETUKHOV V A	29	POPOV YU V	30,87,93
OCHIN YE F	70	PARAMONOV V D	82	PFEIFFER M	34	POPOVA N R	76
ODULOV S G	30	PARFANOVICH I A	33	PILARSKI J	99	POSTNOY YE L	5
OGNEV L I	65	PARYGIN V N	30	PILIPOVICH V A	70	POSTNOV N P	96
OKHRIMENKO B A	8	PARZHIN S N	56	PILZ M	107	POTAPOV V K	79
OKRUGASHVILI T G	38	PASHININ P P	27	PINCHUK S D	58,62	POTEMKIN A K	36
OLEFIR G I	26	PASHANIK G A	35	PISANKO A I	80	POYARKOV A G	86
OLZOYEV K F	67	PASSIA H	99	PISARENKO V F	105	POZDEYEV V V	18
ONOKHOV A P	102	PAUL H	40	PISARENKO V G	36	POZDNYAKOV A YE	115
ORAYEVSKIY M N	19,23	PAVLENKO V S	16	PISAREV R V	101	PRADEL T	29
ORACHEVSKIY L S	1	PAVLOV A V	75,95	PISAREV V S	99	PRAKHOF M S	53,66
ORLOV G N	97	PAVLOV V I	7	PIS'NENNY V D	12	PREVARSKIY S A	78
ORLOV L N	15	PAVLOV V T	71	PIVEN' B T	39	PRIDATCHENKO YU V	40
ORLOV M S	2	PAVLOV V YE	60	PIVOVARCHIK V F	99	PRILEPIN M T	94
ORLOV M YU	12	PAVLOVA L N	57	PIVOVAROV F L	66	PRISHIVELKO A P	62
ORLOV O A	1	PAVLYUK A A	2	PKHALAGOV YU A	61	PRIVALOVA T A	104
ORLOV V M	52,56	PAWLAK J	99	PLATEK D	30	PRIYEZHEV A V	96
ORZEGOWSKI H	44	PEKHLIVANOV KH N	70	PLATONOV A V	18	PROKHOROV A M	3,7,27,46,79
OSADCHIY V M	96	PELETSKIY V E	114	PLESHAKOVA L A	120	PROKHOROV K A	83,98,105
OSACHEPKOV S L	61	PELIPENKO V I	104	PLESHANOV YU YE	113	PROKOP'YEVA S P	111
OSHEROV V I	43	PENIN A N	102	PLESSKIY V P	37	PROKOP'YEV V T	4
OSIKO V V	3,105	PENTIN YU A	109	PLETNEV V V	116	PROKOP'YEV V YE	10,16,17
OSIPOV V M	97	PENZINA E E	33	PLOSHAY L L	98	PROKUDINA T M	57
OSIPOV V V	120	PEREGUDOV G V	123	PLOTKIN M YE	123	PRONINA N V	5
OSIPOV YU I	13	PERGAMENT A KH	7	PLYAVINYA I K	71	PROSALOVA N A	72
OSIPOVA N V	16	PERMINOVA V M	105	PODOLEANU A G	48	PROTOPOV O D	6
OSTROUKHOV N N	12	PERSHIN A A	55	POEHLER M	26	PROTSENKO YE D	14
OSTROUKHOVA I I	44	PERSONOV R I	107	POGININ I I	115	PRYAKHIN YU A	72
OSTROUKHAYA G V	122	PESCHEL C	44	POGOSYAN P S	31	PTASHCHENKO A A	5
OSTROVSKIY A S	30	PESHKO I I	75	POLETAYEV N L	12	PUGOVKIN A V	111
OVCHINNIKOV A A	87	PETRANOVSKIY N A	75	POLIVANOV YU N	35,111	PULS J	111
OVCHINNIKOV V A	76	PETROSYAN A G	2	POL'SKIY YU V	70	PURYAYEV D T	125
OVCHINNIKOV V M	99	PETROSYAN L G	46	POLTORATSKIY B F	69	PUSTOVALOV V V	118
OVCHINNIKOVA YE F	104	PETROV A I	4	POLUEKTOV I A	33,118	PYATAKHIN V I	46
OVECHKINA T G	76	PETROV A K	82	POLUEKTOV P P	55,59	PYN'KO V G	71
OVECHKIS YU N	75	PETROV A L	29	POLUNIN YU P	16,18		
OVSEPYAN R K	40	PETROV A V	93	POLUYAM V P	20		
OVSYANNIKOV V A	88	PETROV M V	2	POLYAKOV YU G	97		
OZHOVAN M I	59	PETROV R L	20	PONDOMARENKO YE P	115		
		PETROV V D	76	PONDOMAREV YU N	40,58,110	QUILLFELDT W	111
		PETROV V P	53	PONYAVINA A N	69		
		PETROVA N V	84	POPECHITS V I	9		
PACES J	100	PETROVICH I P	39	POPESCU D	14,106		
PAL'YANOV P A	68	PETROVSKIY G T	116	POPESCU I I	14,106	RABKIN L M	111
PANCHENKO M V	61	PETROVSKIY V N	14	POPESCU I M	48	RACHKO A Z	102
PANFILOV V N	82	PETRUKHIN A I	113	POPOV A I	5	RADYUK I M	62
PANDU A A	116	PETRUKHIN YE A	106	POPOV A K	31,38	RAGOZIN YE N	123
PANTELEYEV G V	12	PETRUSHEVICH YU V	120	POPOV A M	37	RAKHINOV R F	57
PANULOVSKIY V F	28	PETRYKIN YU S	119	POPOV A P	49	RAMENDIK G I	92
PAPERNOV S M	81	PETUKH M L	111	POPOV P A	99	RASHKOVICH L N	32

RASSOKHA A A	91, 96	RYSHKOVA M V	120	SELYUTIN O N	89	SHCHERBAKOV YE A	26
RAUTIAN S G	35	RYVKIN S M	72	SEM M F	18	SHEFER A D	107
RAYEVSKIY YE V	32			SEMAK D G	79	SHEGLOV YU D	72
REICHE P	2	S		SEMENKO K A	112	SHELEPIN L A	117
RENTSCH S	36			SERENOV A S	80, 94	SHELUK'KO YU V	92
REPINA G YE	124	SAARI P M	42, 103	SERENOV E G	97	SHELYKH A I	104
RESHEIN V P	38	SABLIKOV V A	101	SERENOV G I	71, 76	SHEPELYANSKIY D L	33
REUTOV A T	31, 47	SABUROVA L A	62	SEMENTOV L P	49	SHEPINOV V P	99
REVENKO V I	110	SACHKOV V I	84	SEMENTSOV D I	27	SHER L M	94
REYNES L YU	79	SADOVNIKOV V P	53, 54	SEMYACHKIN B YE	34	SHERMET'YEVA T A	97
RITUS A I	35	SADOVSKIY I N	39	SENATOROV YU M	80	SHERMAN V YE	91
RODIONOV N B	20	SAFAROV N YU	104	SENATORKIN R S	12	SHEROZIYA G A	121
ROGACHENSKIY A G	62	SAFONOVA YE P	111	SENICHKINA R S	6	SHEVCHENKO S B	78
ROKITYANSKIY V I	45	SAFRONOV G S	75	SENIK A V	119	SHEVEL' S G	4
ROMANOV A B	118	SAGDEYEV R Z	52	SENYUKOV A I	10	SHEVYRIN A YU	19
ROMANOV N G	3	SAGINOVA I D	112	SEREBRYAKOV V A	121	SHEYTEL'MAN G YU	19
ROMANOV YU F	70	SAGINOV A I	67	SERGEYEV A B	94	SHIFRIN YA S	97
ROMANOVSKAYA K H	73, 74, 76	SALAKHOV M KH	103, 104	SERGEYEVA E N	74	SHIKANOV A S	119
ROMANOVSKIY YU V	107	SALAYEV E YU	42	SEROV O B	76	SHILOV A F	87
ROMASHKOV A P	85	SALDIN YE L	108	SEROV YU L	95	SHKEDOV I M	21
RONDAREV V S	96	SAL'KOV YE A	103	SERANOV V F	33, 107	SHKLOVSKAYA-KORDI V V	84
ROSLYAKOV V A	123	SALOKHIDDINOV K I	112	SHAFAYEV G A	99	SHKLOVSKIY YE I	37
ROVINSKAYA YU I	73	SAMARSKIY A A	119	SHAFOROSTOV A I	85	SHKUNOV V V	78
ROZANDV A G	15	SAMOKHVALOV I V	62	SHAKHAY I P	99	SHLYAPNIKOV G V	44, 82
ROZANDV V B	113, 119, 122	SAMSON A M	42	SHAKIROV A KH	11	SHMAL'GAUZEN V I	83, 92
ROZHDESTVIN V N	1	SARKISOV S E	2	SHALAGIN A M	75	SHMAREV YE K	30
RUBANOV A S	34, 39	SARTAKOV V G	79	SHALAYEV YE A	24, 81	SHMATOV I P	82
RUBEZHNYI YU G	55	SATOV YU A	120	SHALDIN YU V	32	SHMELEV V M	20, 82
RUBINA N M	32	SATTAROV F A	75	SHANEL' V A	38	SHOKHUDZHAYEV N	5
RUBINOV A N	9, 111	SAVCHENKO M A	118	SHANSKIY V F	51	SHOTOV A P	6, 108
RURKIN S A	96	SAVCHENKO M V	62	SHAPIRO R I	21	SHPAK M T	112
RUD' YU V	33	SAVEL'YEV B A	63	SHAPIRO I N	21	SHTIRBERG L S	89, 97
RUDENKO I P	51	SAVENOK A A	28	SHAPIRO J YA	96	SHTYKOV V V	43
RUDENKO L B	48	SAVINOV V P	102	SHAPOSHNIKOV V M	83	SHTYKOV YE I	77
RUDNEVSKIY N K	63	SAVOSTIN S A	105	SHARAFUTDINOVA D I	115	SHUGALOVA A L	117
RUDOV S G	110	SAVRANSKIY V V	99	SHARONOV G V	27	SHUL'GA A YA	28
RUKAVISHNIKOV N N	102	SAVUSHKIN A F	88, 106	SHATALOV O P	13	SHUMILOV E N	59
RUKNAN G I	114	SAYAKHOV R SH	35	SHATLOV A V	20	SHUMOVSKIY A S	44, 101
RUNETS L P	71	SAZONOV V N	44	SHAYDUK A M	116	SHUSTROV V A	73
RUPASOV A A	85	SCHAU J	92	SHAYTSAN YA F	52	SHUYKIN N N	60
RURKIN A N	119	SCHNAPP J D	118	SHCHAVELEV O S	113	SHVAREV YE G	46
RUSEV I R	14	SCHUBERT M	44	SHCHEDRIN A I	116	SHVARTS K K	113
RYABOV YE A	76	SCHUETTE F J	33	SHCHEGLOV P V	21	SHVEGZMDA ZH L	81
RYABOVA L A	80	SCHULTZE D	2	SHCHEGLOV V A	98	SIDORIN A V	116
RYABOVA R V	12	SCHWIDER J	96	SHCHEGLOV V B	22, 69	SIDOROV V G	105
RYBAKOV V A	76, 121	SEBRANT A YU	120	SHCHEGLOV V R	15, 16	SIDOROV V V	60
RYKALIN N N	113	SEDOV L V	37	SHCHELEV M YA	76, 98	SILANT'YEV V I	16
	96	SELEZNEV S N	24	SHCHEPINOV V P	77	SILICHEV O O	32
		SELEZNEVA L A	15	SHCHERBAKOV V N	63	SILIN V P	118, 123
						SIL'NITSKIY A F	57

SIMANKOV V B	77	SOM' L N	102	KUPIS K A	5, 72	TISHKIN V F	122
SINIS V P	5	SONCHIK V K	63	SURMELIAN A	102	TIIOVETS YU F	105
SINITSA L N	67	SOROKA A M	81	SUSHEVICH T A	59, 60	TKACHENKO B K	12
SINIISYNA Z A	81	SOSKIN M S	30, 75	SUSLOV A I	121	TKACHENKO V I	53
SIN'KEVICH A A	63	SOYFER V A	77	SVERLOV B N	6	TKACHUK A M	2
SINYANSKI V F	22	SPIRIDONOV V A	26	SVELICHNYI I R	19	TLEUBERGENOVA G A	64
SIZOVA T M	63	SPIRIDOVICH A L	51	SVIRIDOV A B	17	TOKAR' YA I	64
SKAL A S	79	SPIRINA I A	94	SVIRKO YU P	9	TOKOVININ A A	98
SKALSKY M	48	SPORNIK N M	69	SVIRKUNOV N P	64	TOLMACHEV V I	49
SKLIZKOV G V	118, 119, 123	SRESELI O M	72	SWOBODA W	36	TOLMACHEV YU A	10
SKRELIN A L	94	STANCIULESCU C	14, 106	SYRNIKOVA T A	87	TOMASHEVSKIY YU A	58
SKVORTSOV G YE	37	STARIKOV A D	7	SYTS'KO YU I	10	TOMIN V I	8, 9
SKVORTSOVA YE P	80	STARODUBTSEV A I	12	SZABO L	47	TOMSONS YA YA	98
SLADEK V	117	STAROSTIN A N	7, 21, 120, 123	SZUSTAKOWSKI M	30	TOPORETS A S	94
SLAVIN O K	89	STASEL'KO D I	78, 121	T	TOPORETS YU G	50, 53	50, 53
SLIMINSKI A	93	STAUPENDAH L G	26	TABARIN V A	65	TORPOV A K	58
SLOBOGIN YA M	104	STAVRAKOV G N	30	TABATADZE D G	75	TORPOVA T P	54, 56, 64
SLYUSAREV S G	88	STEFFEN J	114	TAGIROV V I	107	TREGUR I G	101
SMAKOVSKIY YU B	11, 120	STEPANCHENKO V I	40	TAGYEV M H	103	TRETI'YAKOV G K	58
SMEKHOV G D	123	STEPANENKO V D	65	TAMM T B	103	TRIEBEL W	108
SMIRNOV A G	88	STEPANOV A A	22, 69	TANKLEVICH R L	104	TROFINOV V A	66
SMIRNOV I K	97	STEPANOV A YE	122	TANTASHEV M V	50, 53	TROFINOVA A A	27
SMIRNOV V A	97	STEPANOV R M	5, 71, 84, 85	TARASENKO V V	104	TROFINOVA G V	94
SMIRNOV V G	88		86, 126	TARASOV A A	102	TROITSKIY V G	12
SMIRNOV V N	116	STEPANOV D I	110	TARASOV I S	5, 47	TROPCHENKO A YU	70
SMIRNOV V S	3	STEPANOV S I	74	TARASOV V S	98	TROPKIN YE M	88
SMIRNOV V V	56, 62	STEPANOV V V	109	TATARENCHIK V S	97	TRUMBACHEV V F	89
SMIRNOV V V	114	STERIAN P E	48	TELEGIN G V	64	TRZESOWSKI Z	29
SMUROV I YU	24	STERLIGOV V A	4, 6	TELEGIN L S	31	TSAPENKO A M	9
SMYSHLYAYEV S P	63	STETSENGO T P	113	TEL'NIKHIN A A	52	TSAREGRADSKIY V B	43
SNYKOV V P	41	STOLOV A L	2	TEODORESCU V	95	TSEYLER V I	72
SOKKO A I	76, 126	STOTSKIY G I	12	TERENT'YEV YU I	64	TSIBULYA A B	85
SOROLEV G A	33	STRAKHOV V P	85	TERESHCHENKO A I	110	TSIDULKO I	5
SOROLEV L M	12	STRELKOV G M	53, 54	TERZI V F	60	TSIGURO N G	88
SOROLEV V A	111	STREL'NIKOVA YE R	11, 120	TESTOV V G	20	TSIKULOV A N	70
SOROLEVA L V	48	STREL'TSOVA P P	32, 35	THIEDE G	44	TSURIKOV V I	109
SOFRON E	17	STRAIZHEVSKIY V L	92	TIBILOV V K	5	TSYSETSKIY I A	70
SOKOLOV A V	46	STROGANOVA N S	112	TIKHONOV V I	48	TUCHKEVICH V M	77
SOKOLOV I T	93	STROKACH YU P	48	TIKHONOV YE A	96	TURMACHEV G V	110
SOKOLOV S A	51	STYRUKY J	85	TIKHONOV V A	110	TUMACHEV A G	61
SOKOLOV V V	46	STYSIN V YE	17	TIKHONOV V I	84	TUMANOV A N	110
SOKOLOVA YE M	10	SUKHANOV V B	72	TIKHONENKO V I	85, 86	TUMANOVA A N	59, 68
SOKOVINOV V G	27, 28, 50	SUKHANOV V I	8	TIKHONENKO V I	123	TUZOVA S I	4, 6
SOLDATKIN N P	8, 16, 17, 18	SUKHANOVA V B	114	TIKHONOV YE A	70	TYAGAY V A	80
SOLDATOV A N	58	SUKHAREV S A	112	TIKHONENKO V I	8	TYAKHT V V	101, 108
SOLODOV A M	40	SUKHODOL'SKIY A T	91	TIKHONOV YE A	31	TYCHINA I I	99
SOLOMONO V A	15, 16	SUKHORUKT K V S	31, 53, 59, 63	TIKHONOV YE A	98	TYLETYS N A	110
SOLOUKHIN R I	11, 18	SUKHORUKOV A P	71	TIKHONOV YE A	112	TYRYSKHIN I S	110
SOLOV'YEV N A	121	SUKHORUKOVA A K	31	TIKHONOV YE A	112	U	
SOLOV'YEV V S	85	SULTANOV T T	71	TIKHONOV YE A	112		

ZAITSEVSKAYA Z A	6
ZESE E P	66
ZEL DOVICH R YA	78
ZENLYANOV A A	67, 68
ZENLYANSKIY V M	99
ZENSKOV K I	99
ZENSKOV YE M	34
ZENCHENKO S A	13
ZEYGARNIK V A	15
ZEYLIKOVICH I S	69
ZHABOTINSKIY M YE	12
ZHDANOV G S	114
ZHDANOV V G	103
ZHIGLINSKIY A G	86
ZHIGULEVA I S	66
ZHILIN YU V	19
ZHILKIN A M	94, 98
ZHILKIN V A	79
ZHILKO V V	105
ZHITNIKOV R A	3, 39
ZHOTIKOV V G	36
ZHOVTANEISKIY O I	79
ZHUCHENKO A A	6
ZHUK B V	41
ZHUKOV A P	88
ZHUKOV N D	5
ZHUZE V P	104
ZIL BERSHTEYN KM I	117
ZINCHENKO S P	18
ZLATSKIY V T	100
ZLODEYEV A G	32
ZOITA V	124
ZOLIN V F	39
ZOLOTAKEV A I	71
ZOLOTOV YE M	26
ZON R A	113
ZONOV V A	104
ZOREV N M	119
ZOTOV O V	67
ZUROV V A	71
ZUYEV V YE	67
ZYUBRIK A I	79